Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:
(a)   dividing the image into a plurality of tiles;
(b)   for each tile:
        (i)   identifying the colors represented in the tile;
        (ii)   identifying a required number of masks to represent the colors;
        (iii)   comparing the required number of masks with a threshold number of masks;
        (iii iv)   if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile using one or more of the techniques selected from the a group consisting of fills and masks.

2.   (Original) The method of Claim 1 further comprising:
for each tile:
        if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index.

3.   (Original) The method of Claim 2, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:
(a)   determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;

(b) selecting the color identified in (a) as the background
     color for the tile;

(c) generating computer-readable instructions to represent
     the smallest rectangular area in the tile with the
     original bits per pixel or an index.

4.   (Original) The method of Claim 3 further comprising generat-
     ing computer-readable instructions to fill the tile with the
     background color if the background color is not the default
     color.

5.   (Currently Amended) The method of Claim 2, wherein generat-
     ing computer-readable instructions to represent the tile
     using the original number of bits per pixel or a smaller
     index comprises:

     (a) determining whether a data savings is achieved if an
          index is used to represent the tile;

     (b) ~~if a data savings is not achieved, generating com-
          puter-readable instructions representing the tile with
          the original bits per pixel.~~

 ───(c)──if a data savings is not achieved, generating com-
          puter-readable instructions representing the tile with
          the original bits per pixel.

6.   (Original) The method of Claim 1, wherein the threshold
     number of masks equals the original number of bits per pixel
     representing the image.

7.   (Original) The method of Claim 1, wherein the threshold
     number of masks is user-defined as a user input or system
     configuration.

8.   (Original) The method of Claim 1, wherein the threshold
     number of masks is a fixed number less than the original
     number of bits per pixel.

9. (Currently Amended) The method of Claim 1, wherein generat-
    ing computer-readable instructions to represent a tile ~~using~~
    ~~one or more of the techniques selected from the group~~
    ~~comprising fills and masks~~ comprises:
    (a) determining whether there are no default-colored pixels
         in the tile and whether a non-default background should
         be chosen for the tile;
    (b) if there are default-colored pixels in the tile or if a
         non-default background should not be chosen, selecting
         the default color as the background color for the tile;
    (c) if there are not default-colored pixels in the tile and
         a non-default background should be chosen, selecting a
         non-default color for the background and generating
         computer-readable instructions to fill the tile with the
         selected non-default background color;
    (d) determining whether there are any non-background colors
         in the tile;
    (e) if there are any non-background colors:
         (i)   selecting a non-background color;
         (ii) generating computer readable instructions to
               represent the pixels in an area of the tile with
               the selected non-background color as a mask;
         (iii) repeating steps (i) and (ii) for each addi-
               tional, if any, non-background color.

10. (Original) The method of Claim 9, wherein the area of the
    tile represented with the selected non-background color as
    a mask is the entire area of the tile.

11. (Original) The method of Claim 9, wherein the area of the
    tile represented with the selected non-background color as
    a mask is a minimal area within the tile in which the
    non-background color is located.

12. (Original) The method of Claim 11, wherein the minimal area
    within the tile in which the non-background color is located

is a rectangular area determined by the minimum and maximum x and y values in the tile for the non-background color.

13. (Currently Amended) The method of Claim 1, wherein generating computer-readable instructions to represent a tile ~~using~~ ~~one or more of the techniques selected from the group~~ ~~comprising files and masks~~ comprises:
    (a) selecting a background color;
    (b) if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color; and
    (c) for each non-background color, if any, in the tile, generating computer-readable instructions to represent the pixels in an area of the tile with the non-background color as a mask.

14. (Original) The method of Claim 13, wherein the background color is selected arbitrarily from the colors identified in the tile.

15. (Original) The method of Claim 13, wherein the background color is the color which has the greatest number of pixels in the tile.

16. (Original) The method of Claim 13, wherein the background color is the color for which the rectangle bounding the pixels of that color within the tile is the largest.

17. (Original) The method of Claim 13, wherein the background color is the color identified in the tile which, when represented as a mask, compresses the least.

18. (Currently Amended) The method of Claim 1, wherein generating computer-readable instructions to represent a tile ~~using~~ ~~one or more of the techniques selected from the group~~ ~~comprising fills and masks~~ comprises:

for each renderable color in the tile, generating computer-readable instructions to represent the pixels in an area of the tile with the renderable color as a mask.

19. (Currently Amended) A method of reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the method comprising:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

    (i) identifying the colors represented in the tile;

    (ii) <u>identifying a required number of masks to repre-sent the colors;</u>

    <u>(iii)</u> comparing the required number of masks with a threshold number;

    (~~iii~~ <u>iv</u>) if the required number of masks is less than the threshold number of masks,

        (A) selecting a background color;

        (B) if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

        (C) determining whether there are any non-background colors in the tile; and

        (D) if there are any non-background color in the tile:

            (1) selecting a non-background color;

            (2) generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

            (3) repeating (D)(1) — (D)(2) for each additional non-background color.

20. (Original) The method of Claim 19 further comprising:
for each tile:

if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index.

21. (Original) The method of Claim 20, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:
    (a) determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;
    (b) selecting the color identified in (a) as the background color for the tile;
    (c) generating computer-readable instructions to represent the smallest rectangular area in the tile with the original bits per pixel or an index.

22. (Original) The method of Claim 21 further comprising generating computer-readable instructions to fill the tile with the background color if the background color is not the default color.

23. (Currently Amended) The method of Claim 20, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:
    (a) determining whether a data savings is achieved if an index is used to represent the tile;
    (b) ~~if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel; and~~
    ~~(c)~~ if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

24. (Original) The method of Claim 19, wherein the area of the tile represented with the selected non-background color as a mask is the entire area of the tile.

25. (Original) The method of Claim 19, wherein the area of the tile represented with the selected non-background color as a mask is a minimal area within the tile in which the non-background color is located.

26. (Original) The method of Claim 25, wherein the minimal area within the tile in which the non-background color is located is a rectangular area determined by the minimum and maximum x and y values in the tile for the non-background color.

27. (Currently Amended) A method of reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the method comprising:
   (a) dividing the image into a plurality of tiles;
   (b) for each tile:
      (i) identifying the colors represented in the tile;
      (ii) identifying a required number of masks to represent the colors;
      (iii) comparing the required number of masks with a threshold number of masks;
      (iii iv) if the required number of masks is less than the threshold number of masks, generating computer-readable instructions to represent the tile with each of the identified colors as a mask.

28. (Original) The method of Claim 27 further comprising:
   for each tile:
      if the required number of masks is greater than or equal to the threshold number of masks, generating computer-readable instructions to represent the tile using the

original number of bits per pixel or a smaller index.

29. (Original) The method of Claim 28, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

    (a) determining the color in the tile which, if chosen as a background color, causes the remaining colors in the tile to be located in the smallest rectangular area in the tile;

    (b) selecting the color identified in (a) as the background color for the tile;

    (c) generating computer-readable instructions to represent the smallest rectangular area in the tile with the original bits per pixel or an index.

30. (Original) The method of Claim 29 further comprising generating computer-readable instructions to fill the tile with the background color if the background color is not the default color.

31. (Currently Amended) The method of Claim 28, wherein generating computer-readable instructions to represent the tile using the original number of bits per pixel or a smaller index comprises:

    (a) determining whether a data savings is achieved if an index is used to represent the tile;

    (b) ~~if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel; and~~

    ~~(c)~~ if a data savings is not achieved, generating computer-readable instructions representing the tile with the original bits per pixel.

32. (Original) The method of Claim 27, wherein the area of the tile represented with the selected non-background color as

a mask is the entire area of the tile.

33. (Original) The method of Claim 27, wherein the area of the
    tile represented with the selected non-background color as
    a mask is a minimal area within the tile in which the
    non-background color is located.

34. (Original) The method of Claim 33, wherein the minimal area
    within the tile in which the non-background color is located
    is a rectangular area determined by the minimum and maximum
    x and y values in the tile for the non-background color.

35. (Currently Amended) A method of reducing the volume of data
    representing an image, the image represented by a plurality
    of pixels, each pixel encoded by an original number of bits,
    said method comprising:
    (a) dividing the image into a plurality of tiles;
    (b) for each tile:
        (i)   identifying the colors represented in the tile;
        (ii) identifying a required number of masks to repre-
              sent the colors;
        (iii) determining whether a data savings can be
              achieved by using masks to represent the tile;
              said data savings determination based on the
              required number of masks and a threshold number
              of masks;
        (~~iii~~ iv) if a data savings is possible,
              (A)   selecting a background color;
              (B)   if the background color ~~is~~ needs to be
                    rendered, generating computer-readable
                    instructions to fill the tile with the
                    selected background color;
              (C)   determining whether there are any
                    non-background colors in the tile; and
              (D)   if there are any non-background colors in
                    the tile:

      (1)   selecting a non-background color;

      (2)   generating computer-readable instruc-
tions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

      (3)   repeating (D)(1) - (D)(2) for any additional non-background color, if any, in the tile.

36. (Currently Amended) A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

    (i)   identifying the colors represented in the tile;

    (ii) identifying a required number of masks to represent the colors;

    (iii)   determining whether a data savings can be achieved by using masks to represent the tile, said data savings determination based on the required number of masks and a threshold number of masks;

    (~~iii~~ iv)   if a data savings is possible,

        (A)   selecting a color in the tile;

        (B)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected color as a mask;

        (C)   repeating steps (A)-(B) for each additional identified color, if any, in the tile.

37. (Currently Amended) A method of reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method of comprising:

(a) dividing the image into a plurality of tiles;

(b) for each tile;

    (i) identifying the colors represented in the tile;

    (ii) determining whether a data savings is achievable
using an index to represent the colors in the
tile; and

    (iii) if a data savings is achievable, representing
the tile using an index.

38. (Original) The method of Claim 37, further comprising:
for each tile:

    if a data savings is not achievable, using the original
data bits to represent the tile.

39. (Currently Amended) A system for reducing the volume of data
representing an image, the image represented by a plurality
of pixels, each pixel encoded by an original number of bits,
said system comprising:

    a processing unit; and

    a storage medium coupled to the processing unit, the
storage medium storing program code implemented by the
processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

    (i) identifying the colors represented in the tile;

    (ii) identifying a required number of masks to repre-
sent the colors;

    (iii) comparing the required number of masks with a
threshold number of masks;

    (iii iv) if the required number of masks is less
than the threshold number of masks, gener-
ating computer-readable instructions to
represent the tile using one or more of the
techniques selected from the a group con-
sisting of fills and masks.

40. (Currently Amended) A system for reducing the volume of data

representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

    (i)   identifying the colors represented in the tile;

    (ii) <u>identifying a required number of masks to represent the colors;</u>

    <u>(iii)</u> comparing the required number of masks with a threshold number;

    (~~iii~~ <u>iv</u>)   if the required number of masks is less than the threshold number of masks,

    (A)   selecting a background color;

    (B)   if the background color needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

    (C)   determining whether there are any non-background colors in the tile; and

  (D)   if there are any non-background color in the tile:

    (1)   selecting a non-background color;

    (2)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

    (3)   repeating (D)(1) – (D)(2) for each additional non-background color.

41. (Currently Amended) A system for reducing the volume of data representing a digital image, the digital image comprising a plurality of pixels, each pixel represented by an original number of data bits, the system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

   (i)   identifying the colors represented in the tile;

   (ii) <u>identifying a required number of masks to repre-</u>
        <u>sent the colors;</u>

   <u>(iii)</u>   comparing the required number of masks with a
          threshold number of masks;

   (~~iii~~ <u>iv</u>)   if the required number of masks is less
          than the threshold number of masks, gener-
          ating computer-readable instructions to
          represent the tile with each of the identi-
          fied colors as a mask.

42. (Currently Amended) A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said method comprising:

   a processing unit; and

   a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

   (i)   identifying the colors represented in the tile;

   (ii) <u>identifying a required number of masks to repre-</u>
        <u>sent the colors;</u>

   <u>(iii)</u>   determining whether a data savings can be
          achieved by using masks to represent the tile;
          said data savings determination based on the
          required number of masks and a threshold number
          of masks;

   (~~iii~~ <u>iv</u>)   if a data savings is possible,

(A)   selecting a background color;

(B)   if the background color is needs to be rendered, generating computer-readable instructions to fill the tile with the selected background color;

(C)   determining whether there are any non-background colors in the tile; and

(D)   if there are any non-background colors in the tile:

(1)   selecting a non-background color;

(2)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected non-background color as a mask; and

(3)   repeating (D)(1) - (D)(2) for any additional non-background color, if any, in the tile.

43.   (Currently Amended) A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile:

(i)   identifying the colors represented in the tile;

(ii) identifying a required number of masks to represent the colors;

(iii) determining whether a data savings can be achieved by using masks to represent the tile, said data savings determination based on the required number of masks and a threshold number of masks;

(~~iii~~ iv)   if a data savings is possible,

(A)   selecting a color in the tile;

(B)   generating computer-readable instructions to represent the pixels in an area of the tile with the selected color as a mask;

(C)   repeating steps (A)-(B) for each additional identified color, if any, in the tile.

44. (Currently Amended) A system for reducing the volume of data representing an image, the image represented by a plurality of pixels, each pixel encoded by an original number of bits, said system comprising:

a processing unit; and

a storage medium coupled to the processing unit, the storage medium storing program code implemented by the processor for:

(a) dividing the image into a plurality of tiles;

(b) for each tile;

(i) identifying the colors represented in the tile;

(ii) determining whether a data savings is achievable using an index to represent the colors in the tile; and

(iii)   if a data savings is achievable, representing the tile using an index.